Best thermal stability for reliable soldering result

TP series Reflow system

HB Automation

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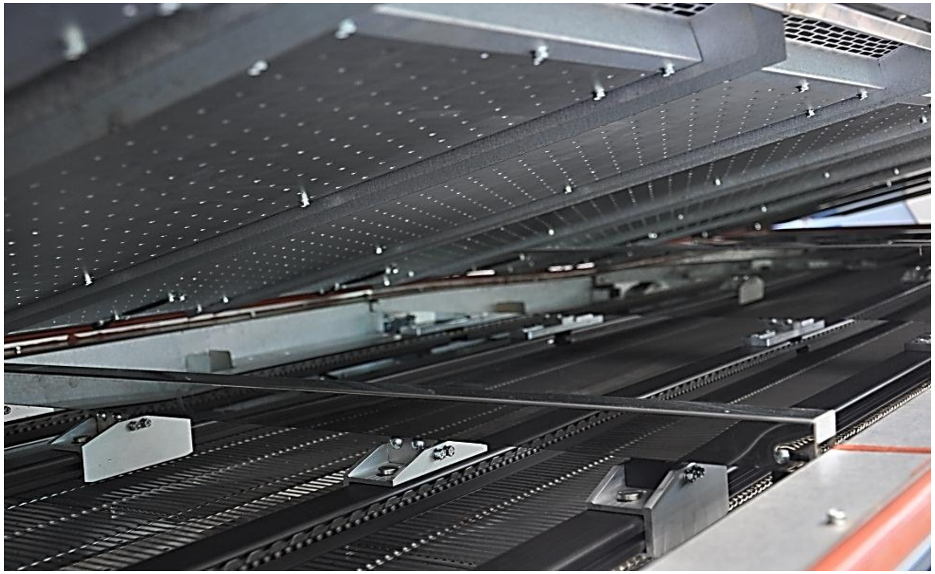
With the lead-free implementation now behind most of us, today's concerns in the PCB manufacturing industry are moving in a very exciting direction. Market demands are forcing the OEM and EMS global players to look beyond the soldering process alone in order to optimize the manufacturing process from a total economic efficiency standpoint.

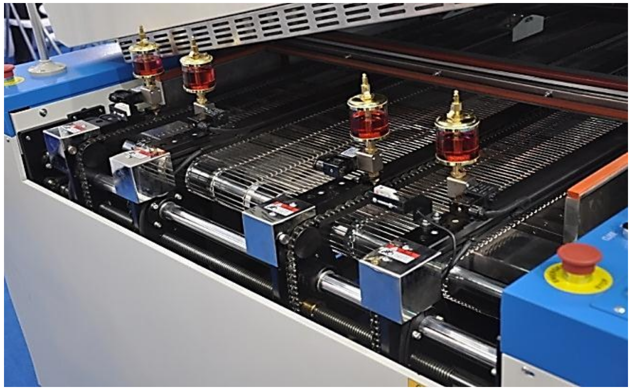
HB Automation is one of the Chinese leading suppliers of quality machines and equipment for the highly competitive PCB manufacturing industry. We have made one of our customers' main production challenges our own: **guaranteeing the highest productivity with the lowest manufacturing cost.**

Reliability. Conveyor system

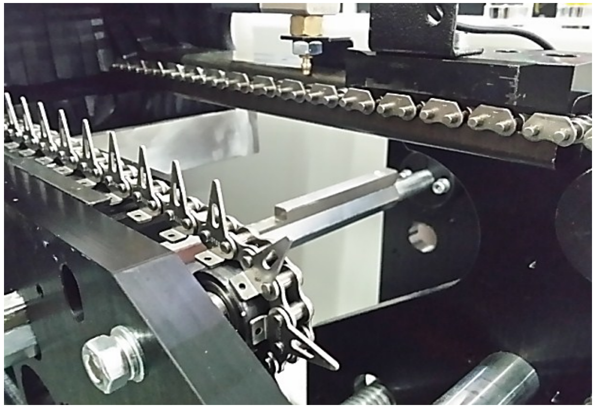


Our flexible system saves you money. Maintenance and downtime are reduced by means of a continuous process based on an absolutely reliable conveyor, as well as an ingenious mechanical system. The conveyor system has been laid out in accordance with requirements specified for future placement machines, and optional for a maximum width of **610 mm.**

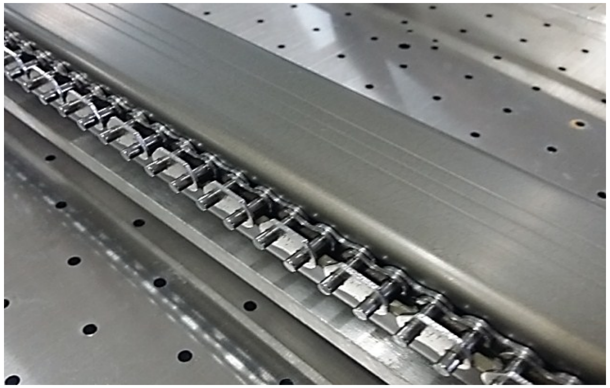
The patented segmented design allows the rails to release the thermal stress in the oven conveyor system and guaranty the reliability and stable with a special surface treatment which makes it more endurable than any other oven.



Dual lane with dual speed available



PCB support with parking position



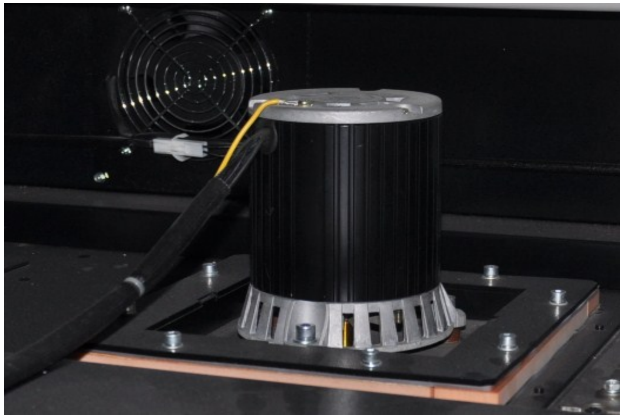
Special chain with Pins

Optimal heat uniformity and transfer

The foundation of excellent heat transfer in **TP series** reflow is our in-depth understanding of convective heat generation ,transfer and management. The result- TP series ovens are unique in using the fastest- acting heat source available: **High-heat nickel chromium heater.**

Efficient power design and heat management system greatly improves energy savings while lowering carbon emissions.

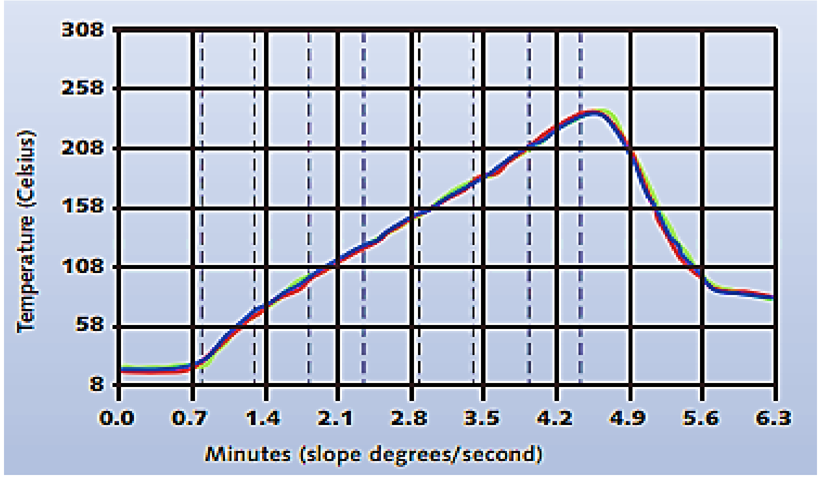
- Power savings of 20 to 25 % due to the 3 phase of heating technology .
- Special insulation around the body prevents heat loss
- Short warm-up time
- Low power consumption:



Minimal distance between the nozzle panels and the conveyor, as well as separately adjustable flow rates for the upper and lower heating zones, assure that the PCBs are heated up in an extremely uniform fashion. Stressing within the PCBs is thus minimized, and related soldering defects are reduced.

Exclusive closed loop convection control

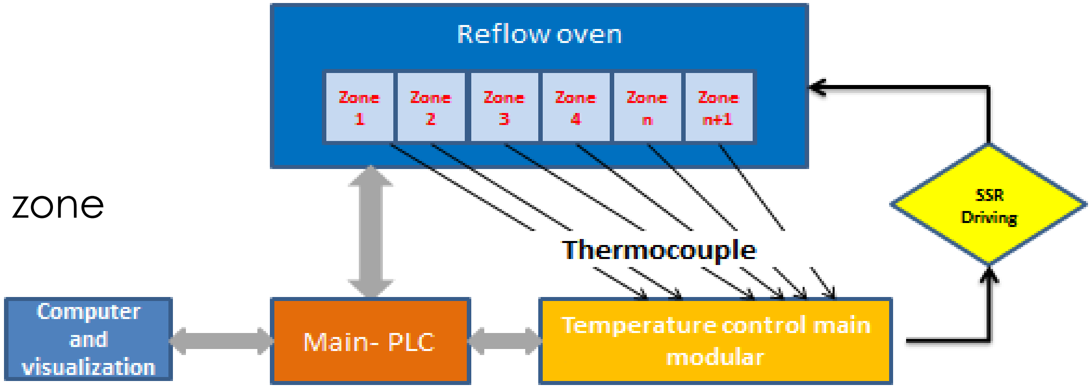
The most efficient reflow heating system allows for the most flexibility in the loading conditions. The improved HB Automation's heating technology requires almost no distance between PCBs regardless of type, size and mass.



The TP series oven guarantees absolute process stability when running at "Board on board" maximum capacity. Intermittent and /or continual loading does not affect the long term process stable of the machine even in a "24/7" 3 shift production environment.

With our exclusive closed loop convection control , the oven features:

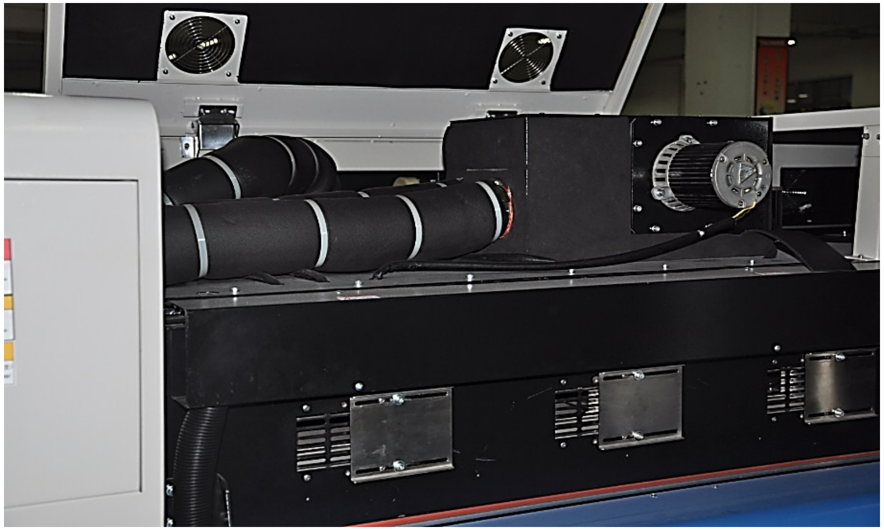
- Improved temperature uniformity
- Guaranteed process repeatability
- Excellent convection efficiency reduces zone temperature set-points Powerful



Innovative Cooling System

The demands on efficient cooling system in a reflow oven are higher than often expected. In the first instance, the cooling gradient plays an important role in determining solder joint stability. For lead free application, the industry standard recommended a cooling gradient between 2 to 6 ° C/sec in order to achieve an optimal solder joint microstructure and in order to prevent component damage.

In TP series reflow oven, the cooling gradient is available to change by the PC interface, which is for a exit temperature of the PCB for further handling.



Nitrogen Control

Process Atmosphere Control

With the nitrogen control the desired ppm level is held constant by continuously measuring the residual oxygen value. This is accomplished by injecting nitrogen into the process chamber in a variable fashion depending upon the measured residual oxygen value.

Closed loop nitrogen control system (Option)

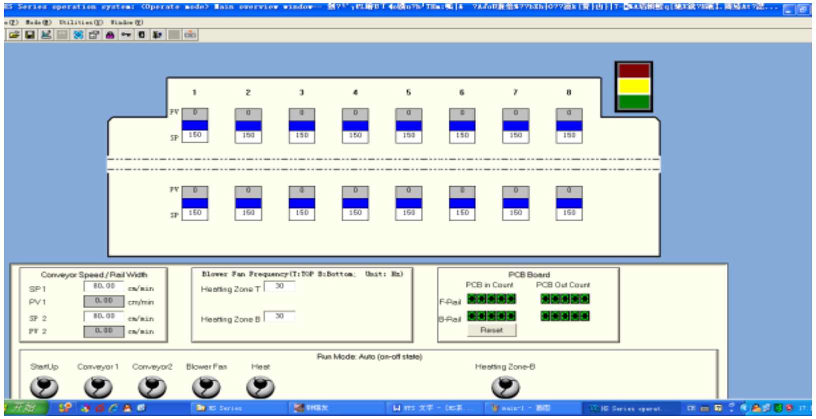
To maintain stable ,user-selected oxygen PPM levels automatically. A wide range of PPM levels can be selected with nitrogen consumption rate as low as depending upon board size . An internal oxygen sensor and proportioning valve is used to minimize nitrogen consumption and related costs by up to 50% ! Use completely sealed design inside the chamber of oven to be effective protection for nitrogen.

User friendly software

The menu of the TP series Software is arranged very clearly and intuitively. Faulty operations can be avoided in this way and it is good for quick working.

User Levels

With the Software you can set optimally the rights for different user groups, e.g. for administrators, supervisors and users.



SP 1 80.00 cm/min
PV 1 0.00 cm/min
SP 2 80.00 cm/min
PV 2 0.00 cm/min

Heating Zone T 30
Heating Zone B 30

Run Mode: Auto (on-off state)

Key standard features

- Lead-free Process-Guaranteed
- Forced Convection
- Advanced Flux management system
- Combination pin chain and mesh belt conveyors
- Low Nitrogen and Power Consumption
- International standard (SMEMA)
- Standard 3 cooling zone (top and down)
- Uninterruptible power supply
- Automatic edge rail lubrication system
- Temperature curve analysis, storage, call function
- Board counter and multiple alarm functions
- Operator level management

Optional features

- Dual lane with independent lane speed control
- Full Nitrogen system
- Repeatable center support system in single lane Or dual lane
- KIC 24/7

Model	# Heat zones	# cooling zones	#Heated lengths	# Cooling lengths	Total length
TP-0803	8	3 UP+ 3 Down	3125MM	1305MM	5580MM
TP-1003	10	3 UP+ 3 Down	3895MM	1305MM	6370MM
TP-1203	12	3 UP+ 3 Down	4710MM	1305MM	7185MM

SHENZHEN . CHINA

HB AUTOMATION EQUIPMENT CO.,LTD

Add. :Hao Bao Industrial Park ,No.43 , Xin Er Hong Road,Shajing , Baoan , Shenzhen , China
Tel :+86-755-27272795
Fax:+86-755-27271140
E-mail: info@sz-hb.net